This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of claims:

Claim 1 (previously amended): A device for detecting or quantitating one or more of a plurality of different polynucleotide sequences in a liquid sample, said device comprising

a substrate defining a sample-distribution network having (i) a sample inlet, (ii) two or more detection chambers, and (iii) channel means providing a dead-end fluid connection between each of said chambers and said inlet, wherein at least two of said detection chambers each contain a different, sequence-specific polynucleotide binding polymer for detecting or quantitating different polynucleotide sequences that may be present in such sample, to produce a detectable signal,

wherein said substrate comprises two or more laminated layers,

whereby evacuation of said network, followed by application of such sample to said inlet, is effective to draw sample by vacuum into each of said chambers.

Claims 2-40: (cancelled)

Claim 41 (previously added): The device of claim 1, wherein said channel means comprises a single channel to which said detection chambers are connected by said fluid connections.

Claim 42 (previously added): The device of claim 1, wherein said channel means comprises a first channel to which a first group of detection chambers are connected by such dead-end fluid connections, and a second channel to which a second group of detection chambers are connected by such dead-end fluid connections.

Claim 43 (previously added): The device of claim 1, wherein said channel means comprises an individual channel for each detection chamber, for providing a dead-end fluid connection between said inlet and each detection chamber.

Claim 44 (previously added): The device of claim 1 comprising at least one laminated layer comprising copper.

Claim 45 (previously added): The device of claim 1 comprising at least one laminated layer comprising aluminum.

Claim 46 (previously added): The device of claim 1 comprising at least one laminated layer comprising silicon.

Claim 47 (previously added): The device of claim 1, wherein said detection means comprises an optically transparent window associated with each detection chamber, through which such signal can be optically detected.

Claim 48 (previously added): The device of claim 1, wherein the at least one binding polymer includes first and second oligonucleotide primers having sequences effective to hybridize to opposite end regions of complementary strands of a selected polynucleotide sequence, for amplifying the sequence by primer-initiated polymerase chain reaction.

Claim 49 (currently amended): The device of claim 48, wherein the at least one binding polymer further comprises a fluorescer-quencher oligonucleotide capable of hybridizing to the selected ~~polyucleotide~~ polynucleotide sequence in a region downstream of one of the primers, for producing a detectable fluorescent signal when the selected sequence is present in the sample.

Claim 50 (previously added): The device of claim 1, wherein the at least one binding polymer comprises first and second oligonucleotides effective to bind to adjacent, contiguous regions of a selected polynucleotide sequence.

Claim 51 (previously added): The device of claim 50, wherein the at least one binding polymer comprises a second pair of oligonucleotides which are effective to bind to adjacent, contiguous regions complementary to the regions bound by the first pair of oligonucleotides, for amplification of the regions by ligase chain reaction.

Claim 52 (previously added): The device of claim 1, wherein at least one of the detection chambers additionally comprises an intercalating compound which produces an optically detectable signal upon intercalating a double-stranded polynucleotide.

Claim 53 (previously added): The device of claim 1, wherein said substrate further comprises temperature regulating means for controlling the temperature of each detection chamber.

Claim 54 (previously added): The device of claim 1, wherein said substrate defines at least two such sample-distribution networks.

Claim 55 (previously added): The device of claim 1, wherein the interior of said network is under vacuum.

Claim 56 (previously added): The device of claim 1, wherein at least one of the binding polymers contains a fluorescent dye.

Claim 57 (previously added): The device of claim 1, wherein at least one binding polymer contains a fluorescent dye moiety which produces a detectable signal upon hybridization of the binding polymer to a target polynucleotide sequence.

Claim 58 (previously added): The device of claim 1, wherein at least one binding polymer comprises first and second oligonucleotides effective to bind to adjacent regions of a selected polynucleotide sequence which are separated from each other by one or more intervening bases.

Claim 59 (new): The device of claim 1, wherein at least one of the two or more laminated layers includes a high thermal conductivity layer.

Claim 60 (new): The device of claim 59, wherein the high thermal conductivity layer comprises at least one material selected from copper, aluminum, and silicon.

Claim 61 (new): The device of claim 59, further comprising a temperature regulating device adapted to heat or cool the two or more detection chambers by operatively contacting the high thermal conductivity layer.

Claim 62 (new): A device for detecting or quantitating one or more of a plurality of different polynucleotide sequences in a liquid sample, said device comprising

a substrate defining a sample-distribution network having (i) a sample inlet, (ii) two or more detection chambers, and (iii) channel means providing a dead-end fluid connection between each of said chambers and said inlet, wherein at least two of said detection chambers each contain a different sequence-specific polynucleotide binding polymer for detecting or quantitating different polynucleotide sequences that may be present in such sample, to produce a detectable signal,

whereby a vacuum of said network, followed by application of such sample to said inlet, is effected to draw sample by vacuum into each of said chambers,

wherein the substrate includes a high thermal conductivity surface.

Claim 63 (new): The device of claim 62, wherein the high thermal conductivity surface comprises at least one material selected from copper, aluminum, and silicon.

Claim 64 (new): The device of claim 63, further comprising a temperature regulating device adapted to heat or cool the two or more detection chambers by operatively contacting the high thermal conductivity surface.